Executive Summary

The Regional Wastewater Services Plan (RWSP) outlines a number of important projects, programs, and policies for King County to implement through 2030 to continue to protect public health and water quality and ensure sufficient wastewater capacity to meet future growth needs. In adopting the RWSP in 1999, the Metropolitan King County Council recognized the importance of reviewing implementation of the RWSP on a regular basis. As a result, the council adopted specific RWSP reporting policies in March 2006 that call for regular reviews and reports associated with implementing the RWSP.[1]

The Wastewater Treatment Division (WTD) of the King County Department of Natural Resources and Parks (DNRP) has prepared the *RWSP 2006 Comprehensive Review and Annual Report* in accordance with the RWSP reporting policies. It presents a comprehensive review of RWSP policy implementation from 2004 through 2006, and includes all elements of the RWSP annual report for the year 2006. This is the second comprehensive review report since adoption of the RWSP. The first comprehensive review, *2004 RWSP Update,* focused on RWSP policy implementation from 1999 through 2003.[2]

The RWSP includes 13 sets of policies. The policies provide direction on projects and programs to ensure that King County continues to provide high quality wastewater treatment services and that facilities are in place when needed to meet wastewater capacity needs through 2030. The 13 sets of policies are as follows:

- Treatment Plant
- Conveyance
- Infiltration and Inflow
- Combined Sewer Overflow Control
- Biosolids
- Water Reuse
- Wastewater Services Planning
- Water Quality Protection
- Wastewater Planning
- Environmental Mitigation
- Public Involvement
- Financial
- Reporting

[1] The Metropolitan King County Council adopted specific RWSP reporting policies in May 2006 via Ordinance 15384. The RWSP comprehensive review reporting policies are provided in Chapter 1 of this report.
[2] RWSP annual reports and comprehensive review reports are available on the RWSP library Web site at http://dnr.metrokc.gov/wtd/rwsp/library.htm

The *RWSP 2006 Comprehensive Review and Annual Report* confirms that the RWSP policies continue to be effective and provide important guidance to King County in its role as a regional clean-water agency. Highlights of RWSP policy implementation in 2004–2006 and other elements of the report are provided in this executive summary. The following sections provide a brief description of the RWSP policies and policy implementation highlights in 2004–2006.

Treatment Plant Policies

The RWSP treatment plant policies are intended to guide King County in providing wastewater treatment at its existing plants and in expanding treatment capacity through the year 2030. The policies call for building the Brightwater Treatment Plant to meet the wastewater capacity needs of the northern portion of the county's wastewater service area. The policies include direction on meeting the county's odor control goal to prevent and control nuisance odor occurrences. They also include guidance on producing and using reclaimed water at the county's existing and future treatment plants.

Treatment Plant Projects

Major efforts on three treatment plant projects—Brightwater Treatment Plant, Vashon Treatment Plant, and Carnation Treatment Plant—were under way in 2004–2006.

- **Brightwater Treatment Plant.** King County is building the Brightwater Treatment Plant, the county's third regional treatment plant, to meet the region's wastewater capacity needs in the northern portion of the county's wastewater service area. The Brightwater plant is on schedule for completion in 2010. Activities in 2004 focused on completing predesign, applying for permits, and continuing to involve stakeholders and the public in the Brightwater design and permitting process. In 2005, the project team continued its permitting, design, and stakeholder involvement activities in addition to other activities such as purchasing properties and negotiating mitigation agreements. In 2006, final design was completed and construction began on the treatment plant.
- **Vashon Treatment Plant.** In 1999, King County assumed ownership and operation of the Vashon Treatment Plant. In 2004, construction began on major upgrades to increase capacity and enhance the facility's backup systems to ensure that the facility meets or exceeds permit limits. Construction of the plant upgrades was complete and startup activities began in fall 2006.
- **Carnation Treatment Plant.** The City of Carnation decided to replace on-site septic systems with a new wastewater treatment facility and collection system to better protect public health and the environment, achieve the city's comprehensive plan goals, and maintain and enhance community livability. The city is designing and building the local wastewater collection system, and contracted with King County to design, build, operate, and maintain a new treatment plant and associated discharge facilities. In 2006, final design was completed and construction began on the treatment plant. The project is scheduled for completion in 2008.

Preventing and Controlling Odors

RWSP Treatment Plant Policy (TPP)-4 calls for the county's existing treatment facilities to meet the odor control levels that are considered best in the country for existing treatment facilities of a similar size. New regional treatment facilities are to be constructed with odor control systems that are designed to meet the odor prevention level that reflects the best in the country for new facilities of similar size. The policy also calls for development of a comprehensive odor control and prevention monitoring program.

In accordance with these policies odor control improvements are under way at the West Point and South treatment plants. Brightwater's odor control system is being designed to meet the odor control level for new regional treatment plants and ensure there are no detectable odors from the Brightwater Treatment Plant. In addition, WTD completed the *Odor and H_2S Corrosion Control Plan* in 2006; it describes the odor control and prevention monitoring program's goals and strategic approach to reducing or preventing odors and corrosion of the county's wastewater facilities.

Producing and Using Reclaimed Water at Existing and Future Plants

The RWSP treatment plant policies direct the county to continue and to explore opportunities for expanded use of reclaimed water at existing plants and at all new treatment facilities. Reclaimed water is produced at the West Point and South plants for on-site landscaping and in-plant processes. Some of the reclaimed water produced at South plant is distributed off-site as an irrigation source for nearby sports fields at Fort Dent Park, a wetland plant nursery, and habitat restoration efforts.

The county's future Brightwater and Carnation treatment plants will use membrane bioreactor technology (MBR), which will result in treated wastewater that is seven to ten times cleaner than typical secondary treated wastewater. These facilities are being planned to produce and use reclaimed water for in-plant and off-site purposes.

Conveyance Policies

The RWSP conveyance policies are intended to guide King County on how to accomplish major improvements to the regional wastewater conveyance system through 2030 and beyond, including building and upgrading the pipes and pump stations associated with the Brightwater Treatment Plant. The policies call for the county to use the 20-year peak flow storm as the design standard for its separated wastewater system to avoid sanitary sewer overflows and ensure there is sufficient capacity in the regional conveyance system to accommodate planned growth.

Conveyance System Improvement Program Update

Work began in 2005 to update the conveyance system improvement (CSI) program. WTD worked closely with the component agencies and the Metropolitan Water Pollution Abatement Advisory Committee (MWPAAC) to complete the update in 2007.[3] The update identifies 33 CSI projects to meet capacity needs through 2050; 24 of these projects are planned through the RWSP planning horizon of 2030.[4] All 33 projects are in addition to the RWSP projects that are completed or that are in design or construction.

Brightwater Conveyance

Brightwater conveyance is being built to convey untreated wastewater (influent) to and treated wastewater (effluent) from the Brightwater Treatment Plant to a marine outfall for discharge to Puget Sound. The conveyance system consists of approximately 14 miles of pipelines to be constructed in underground tunnels in north King County. Activities in 2004 and 2005 focused on predesign, permitting, land acquisition, initiation of final design, and negotiation of mitigation agreements. Brightwater conveyance construction began in 2006 and is on schedule for completion in 2010.

RWSP Conveyance Projects in Design or Construction

RWSP conveyance projects in design during 2006 include the Bellevue Pump Station Upgrade, Kent/Auburn Conveyance System Improvements, North Creek Interceptor Improvements, and Black Diamond Storage. RWSP conveyance projects in construction in 2006 include the Fairwood Interceptor Sewer, Juanita Bay Pump Station Replacement, Pacific Pump Station Replacement, and Hidden Lake Pump Station and Sewer Improvements.

Infiltration and Inflow Policies

The RWSP infiltration and inflow (I/I) policies provide direction to King County on working with the component agencies to reduce the amount of I/I that flows into local systems in order to reduce the impact of I/I on the county's regional wastewater system.[5] The policies call for conducting I/I pilot rehabilitation programs, developing conveyance design standards, and performing other actions to meet RWSP I/I reduction goals.

[3] MWPAAC advises the King County Council and Executive on matters related to reducing water pollution. It was created by state law (RCW 35.58.210) and consists of representatives from cities and local sewer utilities that operate sewer systems in King County.

[4] RWSP Wastewater Planning Policy (WWPP)-4 calls for facility sizing to take into account the need to accommodate build-out population. By 2050, the regional wastewater service area is projected to be fully built out and all sewerable portions of the service area will be connected into the wastewater system. Therefore, new conveyance facilities are designed to convey the 20-year peak flow event projected to occur in 2050.

[5] I/I is clean stormwater and groundwater that enter the sewer system through cracked pipes, leaky manholes, or improperly connected storm drains, down spouts, and sump pumps.

A significant effort of WTD's I/I program in 2005 was the completion of a joint county/component agency comprehensive six-year study of I/I in the portions of the regional wastewater service area served by separated sewers. Based on the results of the study, the King County Council approved the *Executive's Recommended Regional Infiltration and Inflow Control Program* in May 2006.[6]

A key component of the recommended I/I control program is the selection and implementation of two or three "initial" I/I reduction projects to test planning assumptions on a larger scale and gain more information about costs. WTD and MWPAAC worked together to select four projects to undergo further evaluation through sewer system evaluation survey (SSES) work and predesign, which is expected to be complete in fall 2008. Upon completion of this work, WTD and MWPAAC will then select the two to three most feasible initial I/I projects for construction.

Combined Sewer Overflow Control Policies

The RWSP combined sewer overflow control policies call for the control of all county combined sewer overflows (CSOs) by 2030.[7] The policies also call for development of a long-range sediment management strategy to prioritize cleanup of contaminated sediments at specific CSO locations.

CSO Control Program

Combined sewers, which carry both wastewater and clean stormwater, exist in many parts of older cities across the nation, including Seattle. To protect treatment plants and avoid sewer backups into homes, businesses, and streets, combined sewers in Seattle sometimes overflow at specific locations (CSOs) into Puget Sound, the Duwamish Waterway, Elliott Bay, Lake Union, the Lake Washington Ship Canal, and Lake Washington. Although the wastewater in CSOs is greatly diluted by stormwater, CSOs may be harmful to public health and aquatic life because they can carry chemicals and disease-causing pathogens.

A major accomplishment during 2004–2006 was construction of two projects that were under way prior to RWSP adoption: the Mercer/Elliott West CSO and Henderson/Norfolk CSO control systems.[8] Both systems were brought online in 2005.

Another achievement was completion of the first CSO control program review in early 2006.[9] The CSO program review concluded that based on information accumulated since RWSP adoption, the priorities set for CSO control projects in the RWSP remain sound.

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[6] The *Executive's Recommended Regional Infiltration and Inflow Control Program* is available on the Web at http://dnr.metrokc.gov/wtd/i-i/library/ExecRec/report.htm

[7] The Washington State Department of Ecology (Ecology) regulates the level of CSO control based on the number of untreated CSO events that occur in a year. Ecology defines "the greatest reasonable reduction" in CSOs (RCW 90.48) as being "control of each CSO in such a way that an average of one untreated discharge may occur per year" (WAC 173-245-020).

[8] These systems were formerly called the Denny Way/Lake Union and Henderson/MLK/Norfolk CSO control projects.

In 2006, predesign and public involvement began on the four highest priority CSO control projects along Puget Sound beaches—Murray and Barton in West Seattle, Magnolia along north Elliott Bay, and North Beach near Carkeek Park.

Sediment Management Activities

King County is responsible for cleaning up sediment contamination related to CSOs under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the state Model Toxics Control Act (MTCA).[10]

To meet RWSP policies, WTD is carrying out a sediment management plan developed in the late 1990s to remediate sediments near CSO outfalls that are contaminated with a variety of heavy metals, phthalates, polychlorinated biphenyls (PCBs), and hydrocarbons.[11] Most of the contamination is from the first half of the 20th century. Work on three projects is under way—cleanup of the Denny Way and Hanford/Lander CSOs and development of a prediction model.

WTD is partnering with the City of Seattle, the Port of Seattle, and the Boeing Company under a consent agreement with EPA and Ecology to prepare a remedial investigation and feasibility study for the Lower Duwamish Waterway Superfund Site. The county is participating in two early action sites—the Diagonal/Duwamish CSO/Storm Drain and Slip 4 CSO—to clean up portions of the waterway earlier than required. In 2006, EPA approved a cleanup plan for Slip 4 CSO sediments. Sediments with the highest contamination will be removed, and the remaining sediments will be capped.

Biosolids Policies

RWSP biosolids policies focus on the beneficial use of wastewater solids. The policies provide guidance on continuing to produce and market Class B biosolids while evaluating alternative technologies that have the potential to produce the highest quality marketable biosolids, including Class A biosolids and require King County to produce biosolids in accordance with federal, state, and local regulations.[12,13] They also provide guidance on minimizing noise and odor impacts and on using digester gas for energy generation.

King County has been recycling biosolids for more than 30 years. The county's biosolids are used in agriculture and forestry, and as an ingredient in compost. One hundred percent of King County's biosolids were recycled in 2004–2006.

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[9] The CSO control program review is available on the Web at http://dnr.metrokc.gov/wtd/cso/library.htm#plans

[10] CERCLA is commonly known as Superfund.

[11] The sediment management plan is available on the Web at http://dnr.metrokc.gov/WTD/sediment/library.htm

[12] Class B biosolids refer to biosolids that have been treated to significantly reduce pathogens to levels that are safe for beneficial use in land application. Federal and state regulations require site management and access restrictions when biosolids of this quality are land applied.

[13] Class A biosolids refer to biosolids that have been treated to reduce pathogens to below detectable levels. Federal and state regulations require this level of quality for biosolids that are sold or given away in a bag or other container, or applied to lawns or home gardens.

The digester gas that is a byproduct of the solids treatment process can be used as fuel and converted to electricity and heat for treatment plant use. Both the West Point and South plants recover this gas to generate electricity and heat for treatment plant processes; it has been used to power engines, boilers, and turbines. Some of the gas produced at South plant is sold to Puget Sound Energy for distribution in its natural gas system. In 2004–2006, in cooperation with the U.S. Environmental Protection Agency and FuelCell Energy, Inc., King County sponsored the world's largest fuel cell demonstration project using digester gas at South plant.[14]

Water Reuse Policies

RWSP water reuse policies provide guidance to King County on the development and implementation of its reclaimed water program. The policies also provide direction on pursuing the use of reclaimed and preparing a reclaimed water feasibility study.

Producing and using reclaimed water can help reduce the volume of treated effluent discharged to Puget Sound. Reclaimed water is wastewater that is treated to such a high level it can be used safely and effectively for nondrinking purposes such as landscape and agricultural irrigation, heating and cooling, industrial processing, wetland enhancement, and helping to reduce withdrawals from streams and groundwater.

King County has been safely producing and using reclaimed water at South plant in Renton and West Point plant in Seattle since 1997. When operational, reclaimed water from the Carnation Treatment Plant will be used to enhance a wetland in the Chinook Bend Natural Area. The Brightwater reclaimed water "backbone" is being built in conjunction with the Brightwater conveyance tunnels. The backbone will be able provide up to 7 million gallons per day (mgd) of reclaimed water beginning in 2011. Design of the backbone was completed in 2006.

RWSP Water Reuse Policy (WRP)-2 was amended via Ordinance 15602, which was adopted by the King County Council in September 2006. The amended policy replaced the directive for a reclaimed water work program—that was submitted in December 2000—with the directive for preparation of a reclaimed water feasibility study by December 2007. WTD is proceeding with the work of the feasibility study to meet the December 2007 deadline.

Wastewater Services Policies

The RWSP wastewater services policies are intended to guide King County in providing wastewater services to its customers and in operating and maintaining its system. The policies call for the county to construct, operate, and maintain its regional wastewater system to prevent sewage overflows, protect public health and the environment, comply with regulations, and improve services in a fiscally responsible manner. The policies recognize the region's investment in the regional wastewater system and the importance of ongoing maintenance and repair to

[14] A fuel cell is a device that chemically combines hydrogen and oxygen to make electrical energy without combustion. Fuel cells can operate on a variety of fuels including natural gas, methanol, ethanol, landfill methane, coal gas, digester gas, propane, gasoline, and pure hydrogen.

protect this investment. To that end, the policies direct the county to establish and implement an asset management program to ensure continued reliability of the system's infrastructure.

Implementation of the RWSP ensures that adequate wastewater capacity will be available when needed. WTD's forecasting and demand-modeling capabilities, in-field flow monitoring, and ongoing facility inspections provide essential information to identify and address capacity, operational, and maintenance needs.

WTD is developing a formal and detailed asset management plan to optimize the useful life of the county's wastewater facilities and is expected to be complete by the end of 2007. The plan will include information on best management practices for all assets and refine the long-range capital replacement program to best predict which assets will need to be replaced, when they will need to be replaced, and a corresponding budget.

Water Quality Protection Policies

The RWSP water quality protection policies guide King County in identifying and resolving regional water quality issues, protecting public and environmental health, and protecting the public's investment in wastewater facilities and water resource management. The policies recognize that research and analysis are required and will be used to evaluate water quality of water bodies in WTD's wastewater service area.

In addition, RWSP water quality protection policy (WQPP)-5 specifies that the King County Executive implement a comprehensive water quality monitoring program of streams and water bodies that are or could be impacted by the wastewater system and that the executive submit summary reports and comprehensive reviews of this information to the King County Council as outlined in K.C.C. 28.86.165.[15] In general, monitoring activities in 2006 found that the quality of marine and fresh waters in King County is good.[16]

WTD routinely samples its effluent and the quality of the water near treatment plant and CSO outfalls. The county's treatment plants and associated facilities continue to be in compliance with the terms and conditions of their National Pollutant Discharge Elimination System (NPDES) permits.[17] Both West Point plant and South plant received the National Association of Clean Water Agencies (NACWA) Platinum Peak Performance Award for operating five consecutive years with no permit exceptions.

King County's Trouble Call Program investigates water quality complaints, including wastewater overflows and leaks, in the greater King County wastewater service area. Services include taking samples and implementing emergency responses such as notifying public health

[15] In September 2006, the King County Council adopted Ordinance 15384, which amended this policy to include information and results of the water quality monitoring program in RWSP annual reports instead of as a separate report.

[16] Monitoring activities and results for 2004 and 2005 are available on the Web at http://dnr.metrokc.gov/wtd/rwsp/library.htm#WQReports; the 2006 results are provided in Appendix O of this report

[17] NPDES permits are issued by Ecology and set limits on the quality and quantity of effluent (treated wastewater) discharged from point sources such as treatment plants, CSOs, and industrial facilities.

agencies and posting signs. The program responded to about 110 incidents each year for the years 2004–2006. In 2004 and 2005, nine of the incidents were WTD-related. In 2006, 24 incidents were WTD-related, primarily because of the Barton Force Main breaks and the December windstorm.

The Industrial Waste Program (IWP) regulates industrial wastewater discharged into the King County wastewater system. The purpose of these activities is to ensure that industries treat wastewater for harmful substances before discharging the wastewater to sewers. This program protects surface water and biosolids quality, the environment, public health, and the wastewater system and its workers. In 2006, 128 permits and 302 industrial waste discharge authorizations were in effect and 376 inspections were conducted.

Wastewater Planning Policies

To protect public health and water quality, it is essential to plan wastewater facilities before they are needed. The RWSP wastewater planning policies are intended to guide King County in its long-term comprehensive planning to meet the regional wastewater needs of the county's service area. The policies direct the county to make a long-term assessment of wastewater needs when planning for future wastewater systems and to take into account full build-out when considering the sizing of facilities. The policies are also intended to ensure that the conditions and assumptions that guide the implementation of the RWSP are routinely reviewed.

There have been no updates made to the population and flow projections that were presented in the *2004 RWSP Update* because no new Puget Sound Regional Council (PSRC) population forecasts by traffic analysis zone (TAZ) data were available in 2004–2006. RWSP key planning assumptions used to determine flow projections and facility sizing have not changed since the publication of the 2004 update. They are as follows:

- **Extent of Eventual Service Area.** The assumed extent of the planning area is the sewerable areas within Urban Growth Areas of King, Snohomish, and Pierce counties where King County WTD has sewage disposal contracts.
- **Future Population.** PSRC 2003 TAZ data, which is forecasted out to 2030, is allocated to sewer basins to determine future flow projections. The maximum wastewater system service area population is a straight line extrapolation of the growth rate between 2020 and 2030 out to 2050.
- **Water Conservation.** WTD continues to assume a 10 percent reduction in per day water consumption between 2000 and 2010, with no additional reduction after 2010.
- **Septic Conversion.** The current planning assumption is that 90 percent of the unsewered area (in year 2000) with potential for sewers will be sewered by 2030 and that 100 percent of this area will be sewered by 2050.
- **Infiltration/Inflow (I/I) Degradation.** WTD assumes that I/I degradation starting in 2000 would be 7 percent per decade, with a limit of 28 percent over a 40-year period; for new construction, the degradation assumption of 7 percent per decade will start after the decade of construction, to a maximum of 28 percent.

- **Design Standard.** The 20-year peak flow storm in 2050 is used as the design standard for the separated regional conveyance system.
- **Planning Horizon.** The year 2050 is used to represent the projected date that the regional wastewater service area will be fully built out and all sewerable portions of the service area will be connected into the wastewater system.

WTD will continue to review and analyze future information that could affect RWSP planning assumptions and make adjustments, if needed, to flow projections and facility needs and sizing.

Environmental Mitigation Policies

The RWSP environmental mitigation policies are intended to guide King County in developing mitigation measures for environmental impacts from the construction and operation of its regional wastewater facilities. The policies recognize that construction and operation of these essential facilities can cause impacts to nearby neighbors and confirm the county's pledge to be a good neighbor. The policies also reinforce the county's responsibility to conduct environmental reviews consistent with the State Environmental Policy Act (SEPA) and to carry out mitigation measures to address the specific impacts identified in an environmental review.

WTD environmental planners prepare or oversee preparation of SEPA documents, such as determinations of non-significance (DNS) and environmental impact statements (EIS). WTD issued 28 wastewater facilities-related SEPA documents in 2004–2006.

WTD works with local jurisdictions, affected residents and businesses, and permitting and regulatory agencies during the planning, environmental review, design, and construction of its projects to develop mitigation measures and ensure its facilities are good neighbors.

Public Involvement Policies

The RWSP public involvement policies are intended to guide King County in maintaining public information and education programs and to engage the public and component agencies in the planning, designing, and operating decisions that affect them. The policies direct the county to involve public officials and citizens of affected jurisdictions early and actively in the planning and decision-making process for wastewater capital projects. They include direction on disseminating information and providing education on the status, needs, and potential future of the region's water resources.

WTD conducts a variety of ongoing general public information and outreach activities in support of the county's wastewater programs and the needs and potential future of the region's water resources. These include a speaker's bureau; tours of the county's wastewater treatment facilities; informational booths at community fairs, festivals, and other events; and an annual water quality survey.

WTD's public involvement group conducts activities to ensure there is a high level of public engagement in WTD's projects. Through these efforts, community members have the

opportunity to be involved in and influence decisions associated with the location, design, and mitigation of WTD's projects. Community members helped influence the design of the Carnation Treatment Plant, Hidden Lake Pump Station, and Juanita Pump Station in 2004–2006. In 2004, a series of meetings were held around the Brightwater Treatment Plant and portal areas to update community members on design and mitigation issues and to solicit their ideas and feedback. Many of the suggestions from those meetings were incorporated into the systemwide mitigation package for Brightwater, which was completed in December 2005.

Financial Policies

The RWSP financial policies are intended to guide King County on the long-term financing of its wastewater capital program and preserve the financial security and bonding capacity for the wastewater system. The policies provide direction used in establishing annual sewer rates and capacity charges and the allocation of the wastewater system costs between existing and new customers.

RWSP Financial Policy (FP)-15 provides direction on meeting the costs of constructing and operating the county's wastewater system. The policy calls for existing customers to pay a monthly sewer rate to cover the portion of the existing and expanded system that serves existing customers. To ensure that "growth pays for growth", new customers are to pay costs associated with the portion of the existing system that serves new customers and costs associated with expanding the system to serve new customers. King County continues to follow the direction provided in RWSP FP-15 to determine the annual sewer rate and capacity charge.

RWSP Cost Estimates

RWSP reporting policies call for including in the RWSP annual reports an update of anticipated RWSP costs through the year 2030.

Planning-level cost estimates are based on generic facility concepts. Specific details of a project such as location, technologies, and environmental impacts and potential mitigation of such impacts are determined later during project predesign. The accuracy of a project's cost estimate will increase as the project progresses through the project life cycle. Costs for projects in planning can have a rough order-of-magnitude estimate in the range of - 50 to +100 percent.[18,19] By the time a project enters the construction phase, estimates typically narrow to a range of -10 to + 15 percent.

The 2006 cost estimate for implementing the projects and programs associated with the RWSP through 2030 is approximately $3.14 billion, an increase of about $98 million from the 2005 cost estimate. Almost one-third of the total 2006 RWSP cost estimate represents planning-level costs. Cost increases are attributed to new projects identified during the process to update the

[18] Project Management Institute's *A Guide to the Project Management Body of Knowledge*, third edition, 2004
[19] Order-of-magnitude estimates are estimates without detailed engineering data, they are often referred to as "ball park" estimates.

conveyance system improvement program, rising inflation and construction costs, and modifications to projects.

Reporting Policies

The reporting policies were added to the RWSP via King County Council adoption of Ordinance 15384 in March 2006. Adding a reporting policies section to the RWSP and the King County Code (28.86.165) eliminated redundancies in reporting requirements that were previously included in several RWSP policies, adjusted the due dates to reflect the availability of information, and consolidated the reporting requirements into fewer, but more comprehensive reports.

The reporting policies call for the King County Executive to review the implementation of the RWSP on a regular basis and submit specific reports to the King County Council and the Regional Water Quality Committee. The *RWSP 2006 Comprehensive Review and Annual Report* is presented in accordance with the policy direction for RWSP comprehensive reviews.